

Two new cavernicolous Nesticid Spiders (Araneae) from New Ireland

by

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With 12 figures

ABSTRACT

Two new species of *Nesticus* (Araneae: Nesticidae) are described from New Ireland caves, *Nesticus renatus* n. sp. and *Nesticus utuensis* n. sp. together with some biogeographical comments.

During a recent entomological expedition to Papua New Guinea several New Ireland caves were visited by the author. Among the many interesting Arachnids collected were several Nesticid Spiders. Although CHAPMAN (1976) mentions the existence of the family Nesticidae in caves of the Finim Tel Plateau (New Guinea Highlands) as to yet no identified *Nesticus* has been recorded from these islands. The nearest known species, *Nesticus aelleni* Brignoli 1972, from the Oriental Region was discovered recently in the Kuruwita Cave (Ceylon).

Family NESTICIDAE Simon, 1894

Genus *Nesticus* Thorell, 1869

Nesticus renatus n. sp.

Material examined: New Ireland, Lelet Plateau (village - Limbin), Dankobe sink-hole at -18 m, alt. 990 m, on wet cave wall, temperature = 21° C, 26.VII.79, J. D. Bourne leg. 1 ♂ (holotype), 1 ♀ (allotype), 3 ♂, 12 ♀ (paratypes), 16 juveniles (all material deposited in the Geneva Natural History Museum).

New Ireland, Lelet Plateau, Lemerigamas Cave, at 100 m from entrance, alt. 1260 m on wet cave wall. August 1979, R. Emery leg. 1 ♂, 3 ♀ (material deposited in the Geneva Natural History Museum).

Description: Holotype ♂. — carapace: length = 1.34 mm, width = 1.3 mm, abdomen: length = 1.3 mm, width = 1.2 mm measurements of legs in mm:

legs	1	2	3	4
Fe	2.08	1.72	1.4	2.0
Pa	0.48	0.52	0.44	0.46
Ti	2.2	1.68	1.12	1.8
Me	1.88	1.44	1.0	1.64
Ta	0.84	0.72	0.64	0.8
	7.48	6.08	4.6	6.7

Carapace, light yellow with a dusky V-shaped marking in the head region as in the female (Fig. 1). A few spines are to be found on dusky marking with several smaller spines in the thoracic region. Abdomen, light grey to white with faint grey bars posteriorly on the dorsal surface, ventrally white. The whole abdomen is covered with long black spines. Sternum, same color as carapace, covered sparsely with long hairs and projecting bluntly between coxae IV. Maxillae with fine but strongly chitinated anterior border. Eyes: anterior medians small, about $\frac{1}{3}$ diameter of other eyes (even smaller in some paratypes). Chelicerae: length more than twice the width of the clypeus and same color as carapace. There are three very prominent teeth (Fig. 2) on the outer margin at the base of which is a series of seven small denticles. A serrated ridge is present on the inner margin of the fangs. Legs: all light orange brown and covered with long hairs, some prone some erect. Spines hardly discernable among these hairs. Male palp: (Fig. 3) with a very characteristic paracymbium approaching in form other known tropical species (e.g. *N. aelleni*, *N. benoitii* Hubert, *N. nepalensis* Hubert etc.). The stylus is long and twisted (Fig. 4).

Allotype ♀ — carapace: length = 1.48 mm, width = 1.28 mm, abdomen: length = 1.45 mm, width = 1.3 mm. Measurements of legs in mm:

legs	1	2	3	4
Fe	2.4	1.88	1.4	2.08
Pa	0.64	0.52	0.44	0.56
Ti	2.2	1.64	1.0	1.72
Me	2.0	1.4	0.96	1.52
Ta	0.88	0.72	0.76	0.72
	8.12	6.16	4.56	6.88

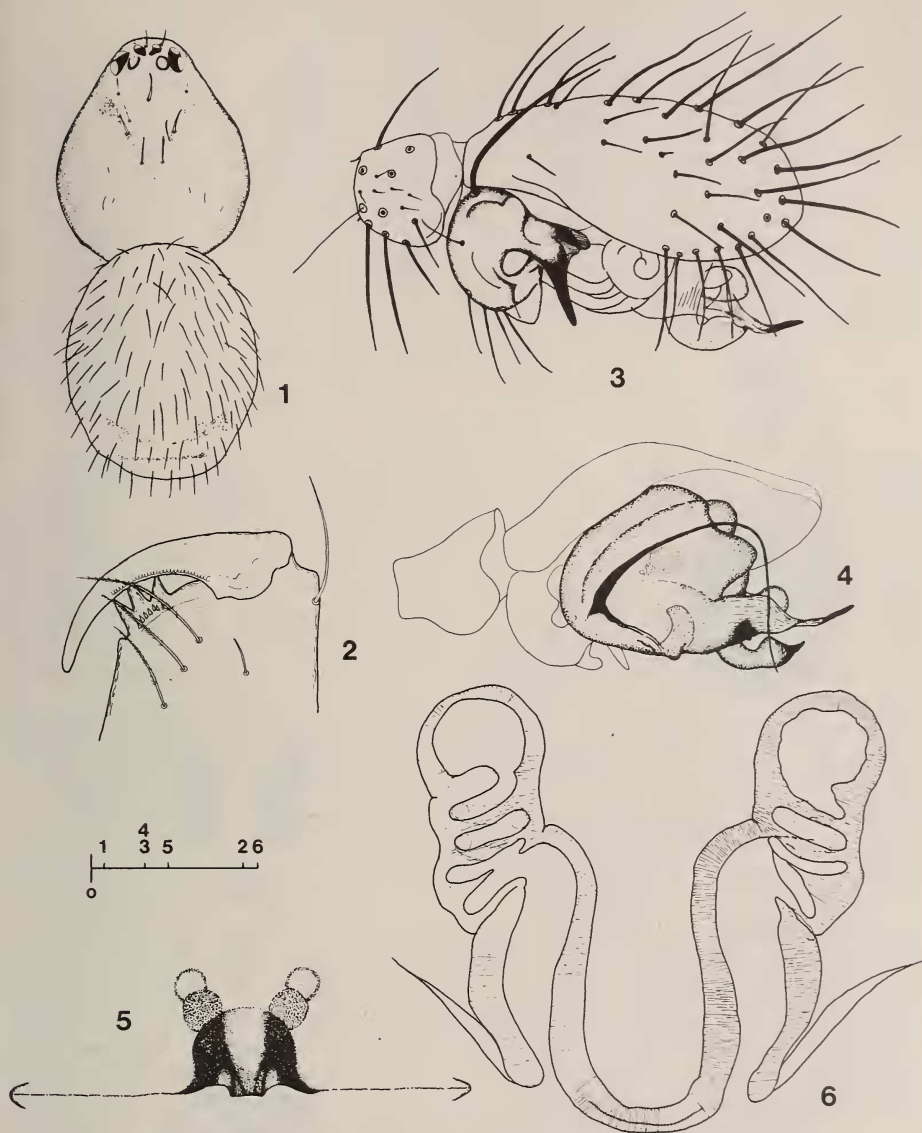
General appearance. Epigyne (Fig. 5). Vulva (Fig. 6).

Remarks: see discussion below.

This species is dedicated to the memory of my friend René Marthaler who died while caving in Papua New Guinea.

Nesticus utuensis n. sp.

Material examined: New Ireland, Utu near Kavieng, cave 2 in Utu dolines, alt. 30 m under stones on damp soil, temperature 27° C. 30.VII.79, J. D. Bourne leg. 1 ♀ (holotype), 1 immature ♂ and 2 ♀ (paratypes), 2 juveniles (all material deposited in the Geneva Natural History Museum).

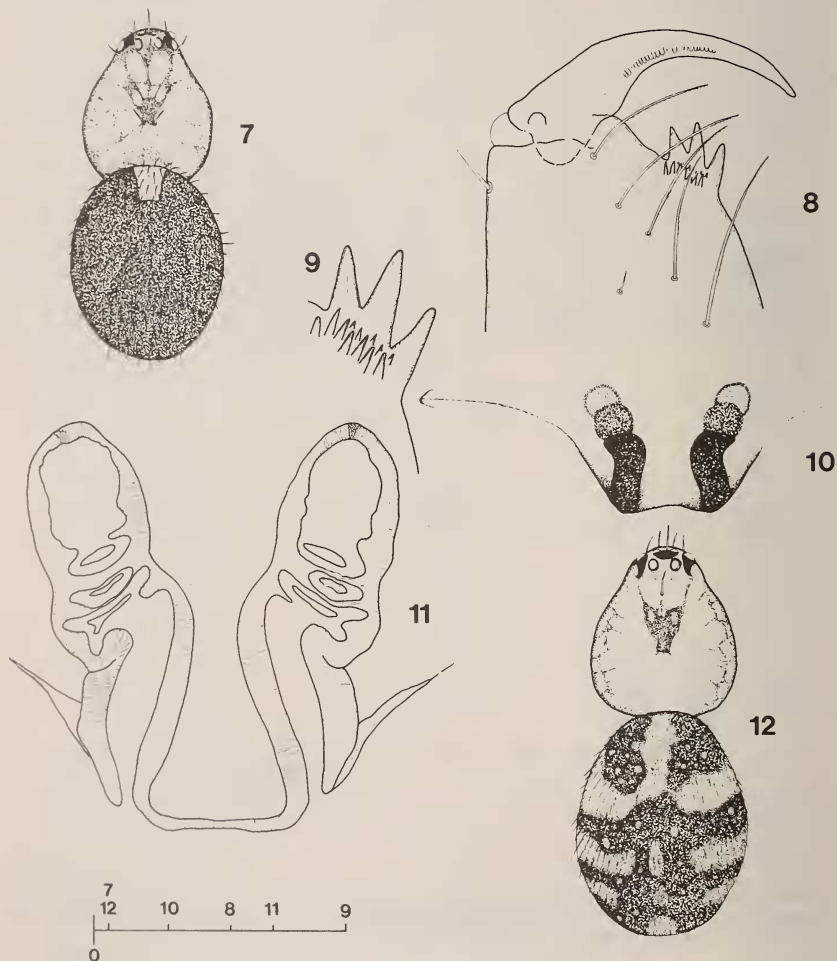


FIGS. 1-6.

Nesticus renatus n. sp., 1: carapace and abdomen ♂, dorsal view; 2: chelicera ♂, intero-lateral view; 3: male palp, lateral view showing paracymbium; 4: male palp, latero-ventral view showing stylus; 5: epigyne; 6: vulva. (scale = 0,1 mm).

Description holotype ♀ à Carapace: length = 1.12 mm, width = 0.88 mm, abdomen: length = 1.28 mm, width = 1.12 mm. Measurements of legs in mm:

legs	1	2	3	4
Fe	1.36	1.16	0.92	1.36
Pa	0.32	0.34	0.28	0.40
Ti	1.32	0.96	0.68	1.20
Me	1.08	0.80	0.64	0.96
Ta	0.58	0.56	0.56	0.52
	4.66	3.82	3.08	4.44



FIGS. 7-12.

Nesticus utuensis n. sp., 7: carapace and abdomen ♀, dorsal view; 8: chelicera interolateral view; 9: details of cheliceral teeth; 10: epigyne; 11: vulva. *Nesticus aelleni* Brignoli, 12: carapace and abdomen ♀, dorsal view. (scale = 0,1 mm).

Carapace, yellow brown with abundant dusky markings particularly in the head region (Fig. 7). Abdomen, brown with small rectangular white patch anteriorly, which continues on the ventral side as a large white band nearly to epigyne. The whole abdomen is covered with short black hairs. Sternum, yellow brown strongly suffused with black, covered sparsely with long hairs. Sternum protruding bluntly between coxae IV. Eyes, anterior medians about $\frac{1}{2}$ diameter of laterals and darker. Length of chelicerae more than twice the width of the clypeus, suffused irregularly with black. Outer margin of chelicerae with three prominent teeth (Fig. 8) set nearer to the lateral border than in the preceding species. At the base of these teeth are two short rows of denticles (Fig. 9) and a serrated ridge is visible on the inner side of the fang. Legs, basic color is orange brown with all femora having longitudinal areas of suffused black. The ends of all tibiae also strongly suffused with black. Legs covered with short hairs; spines clearly visible. Epigyne (Fig. 10) is lightly chitinated and protrudes ventrally. Vulva (Fig. 11) with general form as that of other tropical species.

Male: unknown.

DISCUSSION

The genus *Nesticus* has a world-wide distribution with however few recorded localities in the tropical and oriental regions. Within the Palearctic Region several species are well represented: DRESCO 1966, for the European species; KRATOCHVIL 1933; YAGINUMA 1970, YAMAGUCHI & YAGINUMA 1971, YAGINUMA 1976, for the Japanese species; PAIK *et al.* 1969 for the Korean species; CHAMBERLIN 1924 for the only known Chinese species (*N. alteratus*), and HUBERT 1973 for the Nepalese species, *N. nepalensis* which appears to be well distributed throughout this country. As yet only one species has been recorded from the Oriental Region, *N. aelleni*. Several species have been described from the Nearctic Region (EMERTON 1875; BANKS 1898; CHAMBERLIN 1924; FAGE 1929; GERTSCH 1971; BRIGNOLI 1972; DUMITRESCU 1973). SIMON (1894) described the only known species from the Neotropical Region, *N. unicolor*, (Venezuela).

From Africa (Ethiopian Region) HUBERT (1970, 1971) has described three species (*N. africanus*, *N. benoitii* and *N. machadoi*) and if we place the Seychelles within this region then *Nesticus sechellanus* Simon, 1898 should also be included. Finally the recent description of a Nesticid spider from St. Helen (HUBERT 1977), *N. helenensis*, completes the known species from this region.

From the structure of the epigyne and vulva *N. renatus* n. sp. appears to be closely related to the following species: *N. aelleni*, *N. nepalensis*, *N. africanus*, *N. benoitii*, *N. machadoi*, *N. helenensis* and *N. sechellanus*. Likewise the complicated structure of the paracymbium of the male palp allies the new species to the above group of Oriental-Ethiopian species. Certain characters of the male palp would tend to place the Japanese species within the same group. However the latter species all possess a scape-like epigyne much more pronounced than in the Oriental-Ethiopian group. In this sense *N. utuensis* n. sp. females would appear to be closer to the Japanese species.

All the species mentioned in the above paragraph differ markedly from the European and American species.

The non-cavernicolous species of Africa, and Nepal are all characterised by a distinct abdominal pattern together with the cavernicolous species *N. aelleni* (Fig. 12) and *N. utuensis* n. sp. However the true cavernicolous species are without such a pattern (e.g. some Japanese species and *N. renatus* n. sp.). The latter species equally show an instability of eye size and peri-ocular pigmentation, little or no pigmentation of the carapace and longer finer legs. The absence of epigeal specimens of *N. renatus* n. sp. at the present moment would suggest a status of first level troglophile for this species.

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